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**Maintenance**

**AIR FORCE MATERIEL COMMAND DESIGN  
ENGINEERING PROGRAM GUIDANCE AND  
PROCEDURES**

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This instruction implements AFPD 21-1, *Air Force Maintenance Management*. It provides guidance and procedures for management of the AFMC Design Engineering Program (DEP) in support of the Air Force Reliability & Maintainability Program. It describes the preparation, management, control, and oversight of the contracting and technical aspects of a DEP effort. Users of this instruction should also be familiar with the policy and guidance contained in DoD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures* (as supplemented), DoD Manual 5000.2, *Defense Acquisition Management Documentation and Reports*, FAR Parts 16 (Types of Contracts) and 37 (Service Contracting).

**1. DEP Goal.** AFMC strives to provide its single managers with the best technical and contractual services possible in support of reliability, maintainability and deployability (RM&D) goals. The DEP is a "tool" to be used in support of RM&D.

**2. DEP Objective.** The primary objective of DEP is to provide rapid, quality engineering design services. Our use of DEP can only be deemed valuable when all efforts are made to obtain customer advocacy for the tasks we put on contract. The desired outcome of each DEP application is a producible asset with improved RM&D. DEP can be used for engineering studies, design and prototype construction, testing, and manufacturing analyses. The end result of a DEP task should consist of the: delivery of an improved item reprourement data package for weapon system subsystems and their related equipment, components, parts, and software; or delivery of a report delineating an improved organic manufacturing, maintenance, or repair process for use by our field and/or depot personnel. It is important to note the product of a DEP task (or series of tasks) is to provide the government with a reprourement data package and/or prototype. Simply put, DEP contractors can tell us *how* to fix the deficiency, but the government must fix the deficiency either through a competitive procurement or through an organic resolution. DEP provides top-level engineering services necessary to accomplish complex hardware design, software R&M tasks, and high leverage technology insertion. Due to the breadth of Federal Supply Groups (FSG) supported under DEP, contractor teaming/subcontracting is an acceptable approach to ensure the necessary engineering talent is available to accomplish any DEP task. However, non-value-added "pass

through" task awards are not acceptable. That is, the prime contractor must demonstrate their contribution as the lead technical role in all task orders issued under the DEP contracts. Air logistics centers (ALC) may divide their assigned FSGs (identified in paragraph 1.6) into homogeneous subgroups and provide multiple DEP contracts to cover the requirements. Procurement data packages created under DEP serve to promote competition among production sources. Generally, DEP efforts are expected to result in a broadening of the industrial base.

**3. The DEP Concept.** The DEP concept was born out of the September 1984 policy directive by the Secretary and Chief of Staff of the Air Force: *Reliability and Maintainability (R&M) would be equal with cost, schedule and (other) performance in weapon system acquisition.* HQ AFMC/CC added deployability to the equation in his October 1993 Commander's Policy, "Reliability, Maintainability, and Deployability (RM&D)." The policy states that "AFMC will have an integrated RM&D Program that helps achieve superior combat capability and decreases the life-cycle costs of all weapon systems." Air Force leadership is genuinely committed to increasing combat capability through improved RM&D. In support of our warfighting commands, we need to be able to rapidly transfer those laboratory and industrial technological advances that help the Air Force meet our RM&D objectives. DEP, as a tool, facilitates quick technology insertion into our weapon systems. Specifically, DEP targets those systems and subsystems with poor mean time between failure (MTBF) values, high repair rates, and high dollar value replacement. Using mature technologies, DEP contractors are tasked with improving MTBF -- resulting in a measurable return on investment (ROI) if the new design is implemented. Ideally, the FSGs covered under DEP (as indicated in paragraph 1.6), by each ALC, will match the center's existing technology capabilities. As a result, the DEP Program Managers (PM) can provide technical oversight on all incoming engineering requests to determine if an engineering task can be solved by organic means.

3.1. Product Improvement Process Requirements. True benefits can be obtained from DEP tasks if four Air Force actions are taken.

<sup>2</sup>Continuously screen the weapon system to identify components with poor RM&D features.

<sup>2</sup>Prioritize candidates based on technical reassessment and life cycle cost analysis.

<sup>2</sup>Conduct proper contractor selection, tasking, and monitoring.

<sup>2</sup>Maintain good program tracking and reporting practices.

Each aspect is essential for product improvement and DEP merit. It's also imperative that all DEP tasks are advocated by the customer (with intent to implement the improved product or process) throughout the product improvement process.

3.2. Organizational Conflict of Interest (OCI). The DEP contracts shall contain OCI clauses (FAR 9.5) to protect proprietary data and to maintain consistency with Office of Federal Procurement Policy (OFPP) services contracting policy requiring that contractors render impartial advice/assistance to the government and that no contractor has an unfair competitive advantage over competing contractors. DEP contractors are prohibited from providing production items to the government based on data provided under the DEP contract--whether that data is a technical data package or a specification for an existing item. This prohibition extends to any first tier subcontractors that have contributed substantially to the design of a DEP product. DEP efforts will promote nonproprietary designs, which typically result in lower procurement costs. Encouraging DEP contractors to utilize existing commercial-off-the-shelf technologies (although state of the art technology insertion is also authorized) into their design framework will facilitate both enhanced competition and a broadening of the

manufacturing base. Recompetition data packages and/or prototypes resulting from DEP design efforts should lead to a competitive award. However, the government may elect to use the data package and/or prototype to achieve an organic resolution of the RM&D deficiency.

3.3. Government Data Rights. The acquisition of and right to use or disclose technical data or computer software shall be determined according to the policy and procedures set forth at DFARS Subpart 227.4.

**4. DEP Usage and Limitations.** Only tasks that meet the scope definition in paragraph 1.4.1 are deemed acceptable for DEP. The primary focus of DEP is to provide engineering services to improve the RM&D of USAF weapon systems. Users outside of AFMC should read paragraph 1.10. DEP engineering services will be for RM&D improvements for USAF weapon systems and the organic manufacturing, repair, and test processes used in support of these systems. The focus of a DEP task should not be to improve system or item capability (fly higher, farther, faster, or more accurately), although performance enhancements as a by-product of RM&D are acceptable. DEP will not be used for the following:

- Reverse engineering.
- To acquire services for maintenance, training, or system/equipment operation or integration (including automated data processing equipment {ADPE}).
- To perform independent verification and validation (IV&V) on non-DEP initiated tasks.
- To prepare/acquire/update technical orders (TO), maintenance manuals, and create configuration management files. NOTE: Redline mark-up technical data is acceptable in support of a prototyping activity.
- To purchase, establish, develop, or improve ADPE-based management systems, including data management systems.
- To purchase, install, or integrate material/equipment except as necessary for prototyping purposes.
- To construct facilities.
- Where the proposed effort falls within the purview of the Federal Information Resources Management Regulation.

4.1. Scope. DEP tasks shall strive to improve the RM&D of weapon systems and their related equipment, components, parts (identified by National Stock Number (NSN), and software (identifiable by computer program identification number (CPIN)). When proposing a reliability improvement to a specific component, a systems-level assessment is recommended to ascertain the impact on the overall system reliability. Each DEP task requires that there be an existing identifiable RM&D deficiency (which is the task driver) and an RM&D improvement goal for the end result of the task. All DEP tasks must utilize the engineering talent of the DEP contractors. Allowable tasks can be divided into two general categories: direct and indirect RM&D improvements. These are defined as follows:

4.1.1. Direct RM&D Improvement. Tasks intended to improve the RM&D of a weapon system end item by directly modifying the design of that end item.

4.1.2. Indirect RM&D Improvement. There are two classes in this category:

4.1.2.1. Tasks must create, replace, or improve an organic maintenance or repair process resulting in improved RM&D of the subject subsystem or end item. This may include the design of support equipment enhancements that improve the RM&D of the associated sub-

system or end item. A maintenance or repair process includes only those actions that are accomplished to maintain or repair an end item. These actions do not include logistics processes that move an end item or its components through the supply pipeline, or processes that deploy personnel for the purpose of maintenance or repair. Furthermore, if the DEP task focuses on enhancing the deployability of a specific end item, then an objective of this organic maintenance or repair task must be to improve the end item's throughput.

4.1.2.2. Organic manufacturing, maintenance, and repair process improvements requiring immediate implementation to conform with a new technical standard where failure to implement such process changes could result in serious weapon system mission degradation (e.g., Environmental Protection Agency regulations mandating decreases in purchase and use of ozone depleting chemicals and other hazardous materials).

4.2. Prototyping. Prototyping is strongly recommended to demonstrate the performance and producibility of a design effort. It's encouraged that DEP prototyping tasks be accomplished by two or more subcontractors competitively selected by the DEP contractor. The objective of this activity is to provide the government with qualified sources who can compete for future production awards, thereby increasing the industrial base and reducing product qualification and acquisition lead times. All planned prototyping activities relating to the industrial operations of an ALC (e.g., organic maintenance or repair processes) must be coordinated with and approved by HQ AFMC/ENP/PKP/LGP prior to task order award. The initiating center DEP program manager (IPM) or the owning center DEP program manager (OPM) has the responsibility for ensuring all prototyping tasks are submitted to:

- HQ AFMC for review and approval.
- HQ AFMC/ENP/PKP/LGP will respond to the requesting organization within 5 workdays per reviewing office.

4.3. Determination of Applicable FSG. Each DEP contract is bounded by specific FSG assignments (according to paragraph 1.6). Each DEP task must establish a link by FSG to the appropriate contract. The RM&D problem shall be isolated to the lowest level possible and the FSG of that level (i.e., component, subsystem or system) shall be used to determine the appropriate DEP contract vehicle. For example, if a line replaceable unit (LRU) tester has a reliability deficiency, then the DEP task must be assigned against the FSG of the tester. If the LRU itself has the deficiency, then the task belongs on the DEP contract for that item's FSG. Since software has a CPIN rather than NSN or FSG assignments, software is to be classified with the same FSG as the corresponding hardware level. For example, LRU tester software is classified with the tester FSG and the LRU software with the LRU FSG.

## **5. Responsibilities.**

### **5.1. HQ AFMC Responsibilities.**

5.1.1. HQ AFMC/EN. As the HQ AFMC DEP PM, HQ AFMC/EN will be responsible for ensuring that a highly effective DEP is established and maintained within Air Force Materiel Command. HQ AFMC/EN shall be responsible for the policies and processes necessary to execute an efficient DEP program. Typical responsibilities will include policy development, supplemental guidance, training, and establishing and reviewing DEP metrics. HQ AFMC/EN will be the decision authority for waiver requests on FSG assignments, and will review FSG assignments, prior to

the completion of each DEP contract cycle. FSG reassignments, if deemed necessary, will be accomplished prior to the initiation of each ALC's DEP Acquisition Strategy.

5.1.2. HQ AFMC/PK. HQ AFMC/PK will maintain oversight of and responsibility for DEP contracting policy. HQ AFMC/PK is also responsible for resolving all contract or task order policy issues.

## 5.2. DEP PMs.

5.2.1. Owing Center DEP Program Manager (OPM). Each ALC will implement a vigorous DEP. Each center commander whose center “owns” responsibility for DEP contracts, as defined in paragraph 1.6, will designate an Owing Center DEP Program Manager (here after called the OPM) in their TI organization. OPM activities include: developing and coordinating organizational DEP plans; developing and implementing the acquisition plan, expenditure ceilings, and supplemental guidance; defining specific DEP objectives; analyzing DEP technical and contract performance data; developing and coordinating internal organizational procedures to allow for monitoring of all locally initiated DEP efforts; acting as focal point for all internally and externally generated DEP task proposals; and facilitating technical and cost analyses. OPMs are responsible for ensuring task scope validity. Each OPM will also ensure that their center commander and the HQ AFMC/ENP DEP PM are kept informed of the program technical, contracting, and financial status.

5.2.2. Initiating Center DEP Program Manager (IPM). Each center commander for all other organizations (product, test, and ALCs) that intend to use the DEP, or to support non-AFMC organizations that desire to use DEP, must designate an Initiating Center DEP Program Manager (here after called the IPM). IPM activities include developing and coordinating internal organizational procedures to allow for monitoring of all locally-initiated DEP efforts; acting as a focal point for tasks, facilitating technical and financial analysis of tasks, and ensuring task scope validity for all DEP tasks being initiated by or through their center. When the initiating center is also the owning center, the IPM functions may be accomplished by the OPM. Each IPM will also ensure that their center commander, the OPM, and the HQ AFMC/ENP DEP PM are kept informed of the program technical, contracting, and financial status.

5.3. DEP Contracting Officers (CO). The DEP COs will pay particular attention to 10 U.S.C. 2304, FAR Parts 16 and 37 as supplemented, and Office of Management and Budget and OFPP policies pertaining to Task Order Contracts and Manpower Support Services.

5.3.1. Owing Center DEP Contracting Officer (OCO). Each center commander whose center “owns” responsibility for DEP contracts, as defined in 1.6), will designate an owning center DEP contracting officer (hereafter called the OCO). The OCO will award and be responsible for the “owned” DEP contracts. For orders initiated by the OCO's center, the OCO will ensure that all task orders are appropriate for technical scope and that funds are properly certified. For decentralized ordering, the OCO will ensure all assigned expenditure ceilings (decentralized ordering) and total obligated funds ceilings for the “owned” DEP contracts are not exceeded. The OCO will also ensure that proposed taskings on decentralized orders are certified to be within contract scope by the CO initiating the task, and that the PR package received adequate IPM, ICO, and OPM reviews and approvals. The OCO will retain the authority to reject any and all tasks.

5.3.2. Initiating Center DEP Contracting Officer (ICO). Each center commander for all other organizations (product, test, and ALCs) that intend to use the DEP, or to support non-AFMC orga-

nizations that desire to use DEP, must designate an Initiating Center DEP Contracting Officer (here after called the ICO--is the CO at the center where the task was originated). The ICO will be responsible for ensuring the assigned expenditure ceilings (decentralized ordering) for their organization are not exceeded, the task orders being solicited and awarded on the DEP contracts are appropriate for technical scope and that the funds used have been properly certified. When the initiating center is also the owning center, the ICO functions may be accomplished by the OCO.

**6. FSG Assignment.** The distribution of FSGs/Federal Supply Classes (FSC) to be covered under the DEP was initially determined by grouping the FSGs into homogeneous technology/engineering disciplines.

6.1. Ogden ALC.

- FSG 13 - Ammunition and Explosives.
- FSG 14 - Guided Missiles.
- FSG 15 - Aircraft, and Airframe Structural Components.
- FSG 67 - Photographic Equipment.
- FSG 69 - Training Aids and Devices.

6.2. Sacramento ALC.

- FSG 12 - Fire Control Equipment.
- FSG 58 - Communication, Detection, & Coherent Radiation.
- FSG 59 - Electrical and Electronic Equipment Components (covered under SM-ALC's Advanced Technology Support Program).
- FSG 60 - Fiber Optics Materials, Components, Assemblies, and Accessories (covered under SM-ALC's Advanced Technology Support Program).
- FSG 66 - Instruments and Laboratory Equipment.
- FSG 70 - General Purpose ADPE, Software, Supplies & Support Equipment.

6.3. San Antonio ALC.

- FSG 16 - Aircraft Components & Accessories.
- FSG 17 - Aircraft Launching, Landing & Ground Handling Equipment.
- FSG 28 - Engines, Turbines & Components.
- FSG 29 - Engine Accessories.
- FSG 30 - Mechanical Power Transmission Equipment.
- FSG 31 - Bearings.
- FSC 3655 - Gas Generating & Dispensing Systems, Fixed or Mobile.
- FSG 41 - Refrigeration, Air Conditioning, & Air Circulating Equipment.
- FSG 47 - Pipe, Tubing, Hose, & Fittings.
- FSG 48 - Valves.
- FSG 49 - Maintenance & Repair Shop Equipment.
- FSG 53 - Hardware and Abrasives.

- FSG 61 - Electric Wire, and Power and Distribution Equipment.
- FSG 62 - Lighting Fixtures & Lamps.
- FSG 63 - Alarm, Signal, and Security Detection Systems.

**Note:** The following SA-ALC FSGs will only be approved for DEP application if they are consistent with paragraph 4.1.1.

- FSG 83 - Textiles, Leather, Furs, Apparel, and Shoe Findings.
- FSG 84 - Clothing.

#### 6.4. Warner-Robins ALC.

- FSG 68 - Chemicals and Chemical Products.
- FSG 80 - Brushes, Paints, Sealers, and Adhesives.
- FSG 91 - Fuels, Lubricants, Oils, and Waxes.
- FSG 93 - Nonmetallic Fabricated Materials.
- FSG 94 - Nonmetallic Crude Materials.
- FSG 95 - Metal Bars, Sheets, and Shapes.
- FSG 96 - Ores, Minerals, and their Primary Products.

**7. Establishment of a DEP Contract.** The creation of a DEP contract follows normal contracting procedures. First, the center receives HQ AFMC guidance on the technologies/FSGs to cover in the contract vehicle. The center commander must then designate appropriate technical and contracting organizations with the task of creating the statement of work (SOW), request for proposal, and all other acquisition milestones necessary for contract award. HQ AFMC/PK will provide, as needed, standardized provisions for use in all future DEP contracts.

**8. Contract Management.** The OPM and OCO are responsible for implementing prudent control and oversight procedures, and establishing expenditure ceilings for all decentralized ordering activities. The expenditure ceiling will be stated in the contract and may be amended via a unilateral change order issued by the OCO. The OCO will maintain a log to record (as a minimum) the value of each awarded order, what activity placed the order, and expenditure ceiling balances for each ordering activity. Control and oversight procedures for decentralized ordering must be compliant with Air Force FAR Sup 5307.105(b). Each contracts directorate will work with their requirements counterparts to develop methodologies and processes that provide a fair opportunity for all DEP contractors to be considered for each task or delivery order award.

#### 8.1. Ordering Process.

8.1.1. AFMC ALCs. The responsible engineer will develop a DEP task order package for all proposed DEP tasking. All DEP task order packages must ascertain the applicable FSG, identify the existing RM&D problem (which is the task driver), identify the RM&D improvement goals and benefits of the task, and identify the deliverables required (prototype, design, drawings, study reports, etc.). Where applicable, a projection should be obtained of the expected ROI or percentage improvement to RM&D. This information and the DEP task order package are submitted to the IPM at the initiating (originating) activity. The IPM will review/advise/approve tasks and ensure:

- Scope compliance.
- Well-defined contractual engineering task, SOW, or performance work statement.
- Completion of required attachments.
- Ensure compliance with AFMC FAR Sup 5337.92 if contractor performance is on an AFMC installation.

8.1.2. The IPM may make recommendations regarding contractor selection, suggest other contract vehicles which may be better suited to the task in question, and may even propose organic engineering solutions. After task approval, the IPM will submit the task package to the ICO for further processing. The ICO will review/advise/approve the package for technical scope propriety versus the basic DEP contract, and that the funds have been properly certified. If decentralized ordering is involved, the ICO will endorse the package, request a job control number (JCN), ensure there is adequate expenditure ceiling to cover the projected cost of the task, and forward all package information to the OCO. After receipt of a preliminary approval from the OCO, the ICO may (at their discretion) solicit a contractor (selected according to the procedures established in the basic contracts) and negotiate the task order (stopping short of award). The potential time advantage of this approach must be weighed against the potential risk that the OCO may not approve the task (in whole or in part). Prior to making awards, ICOs will obtain JCN approvals for all new tasks and for all task order amendments which change the scope or value of the task order. The OCO will ensure the task orders being considered for award and awarded on their contracts are appropriate for technical scope, that the funds used have been properly certified, that there is adequate expenditure ceiling to cover the projected cost of the task, and that the procedures for issuing orders as established in the basic contracts have been followed. The OCO may forward the package to the OPM for review/approval to ensure appropriate technical scope. Issues will be worked through OCO - ICO discussions. OCO approval is given by issuing a JCN to the ICO who is then authorized to process the approved task through award of a task order. The ICO will distribute a copy of the awarded task order to the OCO. Owning center review process should not exceed 5 workdays provided the ICO submits a complete DEP task order package, including all attachments, which does not require revisions or iterations to make the task appropriate for the basic contract. The IPM should consult with the OPM early in the task development process to minimize wasted effort on inappropriate tasks, to facilitate timely review, and to minimize iterations in the formal approval process describe above. ICO and OCO processes can be combined when the initiating center is also the owning center for the target DEP contract. Figure 1 further depicts the task ordering process described in this section.

8.1.3. Task Initiation. DEP is designed to take advantage of government-industry interaction to identify targets for RM&D improvements. Interaction between contractor engineers and AFMC technical/engineering personnel is encouraged to identify low MTBF assets and develop strategies for improvement. However, this interaction could result in a "competitive advantage" and a possible violation of the Procurement Integrity Act if a task developed through industry-government interaction evolves into an improvement outside the DEP scope. To resolve this potential problem and ensure open communication between DEP contractors and government technical/engineering personnel, it is required that at the initiating center, the government engineer proactively obtain early concurrence from the IPM and the OPM that the task in question is appropriate for the target DEP contract. The engineer will develop a basic task order package which presents the salient scope and background information, task requirements, proposed deliverables, and other issues for



review/approval by the IPM and in-turn by the OPM. Either or both may seek their CO's assistance as necessary. A consensus go/no-go determination or a recommendation to modify the proposed task will be made to the government engineer by the IPM. Based on the above, the government engineer will then inform the contractor that the proposed effort, if formalized, will be handled according to DEP policy, or that discussions must be terminated. If the proposed task has been determined to be applicable to the DEP, the engineer will proceed as outlined in paragraph 8.1.1. It is strongly recommended that when applicable, the different engineering phases of a task be written as separate tasks addressing analysis, design, test, and prototype. This enhances government control and oversight while also allowing for the DEP task to be better measured in terms of meeting the individual objectives aligned with each phase of work.

8.2. AFMC Product and Test Centers. All proposed DEP tasks will be processed by that center's cognizant engineering and contracting offices as outlined in paragraphs 1.5.2, 1.5.3, and 8.1.1. Each product or test center that initiates DEP taskings will ensure an ICO and an IPM are designated to act for that activity. HQ AFMC/ENP shall not assume responsibility for technical and financial DEP task evaluations.

8.3. DEP Task Order Package Documentation. All DEP orders will contain standardized documentation as listed below:

8.3.1. DEP SOW or work statement.

8.3.2. Contract data requirements List.

8.3.3. Purchase request (PR) and attachments.

8.3.3.1. Scope certification.

8.3.3.2. Cost estimate (optional).

8.3.3.3. Recommended pricing arrangement.

8.3.3.4. Contractor recommendation certification.

8.3.4. Mission critical computer resources designation (if applicable). Examples of the attachments required to be submitted with each PR are provided at figure 2.

## **9. Technical Management.**

9.1. Product Improvement Process. DEP is an important AFMC vehicle for accomplishing product improvement tasks. This instruction has attempted to specify the scope "boundaries" for acceptable DEP task requests (paragraph 1.4.1). The contract management processes detailed in paragraph 1.8 are necessary to ensure complete adherence with current task ordering provisions established at the Air Force Secretary level. The proper use of product improvement tools (i.e., DEP) is relatively simple, yet most engineering organizations are unaware of what type of funding to use and they typically fail to instill a continuous and standard "product improvement process." AFI 21-118, *Aerospace Equipment Product Improvement*, instructs USAF employees on the use of the product improvement working group (PIWG) as the forum for identifying product deficiencies and establishing plans for correcting them. HQ AFMC/ENP has developed a product improvement roadmap that can be used by our operating commands, engineering offices, and contractors in support of the PIWG forum and the DEP vehicle. Figure 3 shows the process steps necessary to establish a continuous weapon system product improvement process. DEP is an excellent vehicle for getting RM&D-driven engineering

tasks completed. DEP supports the nonrecurring engineering requirements in the product improvement process. Once complete, the reprourement data package may be used to competitively acquire production assets. There are four primary steps displayed in the product improvement process of Figure 3: identifying RM&D candidates, prioritizing those candidates, selecting the proper contract vehicle and contractor, and managing the contract. The most important aspect in the entire process is to maintain user support for the program -- technology pull (when product improvement actions are actively pursued by the operating command) is always more efficient than technology push (trying to force the operating command to buy-in to your product improvement program).

9.2. Single Manager Actions. The single manager's organization is responsible for identifying the components and subsystems needing RM&D improvement (engineers, equipment specialists, item managers), identifying the proper contract vehicle (engineers, CO), establishing rough order magnitude cost estimates (engineers, cost estimators), developing the SOW (engineers, equipment specialists, COs), issuing the request for proposal (CO), selecting a contractor (engineers, CO), and monitoring the task (engineers). Engineering is responsible for identifying component deficiencies and recommending improvements to weapon system RM&D. DEP tasks that come to fruition, and result in the creation of a reprourement data package, must be coordinated with the appropriate item manager (if a consumable item, the responsible Defense Logistics Agency (DLA) representative must be a part of the team responsible for implementing the improved item).

9.3. Metrics. The OPM (working with the OCO) is responsible for annually reporting the status of all DEP tasks being worked under their contract vehicle to HQ AFMC/EN. Status reporting will occur in December. Task engineers will be required to submit a report following conclusion of their DEP task. HQ AFMC/ENP shall provide a computer spreadsheet for recording the applicable metrics data. The metric category, source of information, collector/reporter, and means of collecting the data are all shown in Figure 4. Since DEP focuses on the front end (i.e., design, test, qualify) of product improvement, it becomes evident that associated metrics data must pertain to the engineering task's desired objectives and results, versus actual weapon system impacts. Engineers that use DEP will be required to identify RM&D objectives in the task order package, comparing these measures to the actual contractor's results (either in study, drawing, or prototype form). This type of information will ensure AFMC that our engineering community is proactive in its attempts to improve the RM&D features of system components. Engineers shall specify predicted RM&D improvements to the center DEP PMs during the submittal of the task order package (they may also be specified as goals in the SOW).

**10. Authorized DEP Users.** DEP is open to all AFMC organizations on a nonpriority basis. Other Air Force activities, military services, DLA, and the Coast Guard may also use the DEP vehicle for those tasks that are compliant with the scope requirements of paragraph 1.4.1. DEP tasks desired by non-AFMC organizations must be sponsored by an AFMC engineering office constituting the potential for adding technical value to a USAF system. DEP tasks submitted by other Federal agencies must be compliant with the Economy Act (31 U.S.C. 1535) and FAR Subpart 17.5 as supplemented.

## **11. Funding.**

11.1. Air Force. Within the Air Force, funding for weapon system engineering is divided into three basic categories: development engineering, production engineering, and maintenance engineering. These definitions and exceptions are included in AFI 65-601, volume 1, *Budget Guidance and Procedures*. Funding determinations on engineering requirements should be reviewed by task originators and single managers within the context of these definitions and coordinated with the customers. The

single manager should work with the local FM organization regarding any funding propriety questions. A copy of the Engineering Funding Decision Table (from 15 November 1994 white paper on Technology Insertion in a Fielded System) is shown in Figure 5.

11.2. **Applicable Air Force Appropriations.** Appropriations applicable to the funding of Air Force engineering requirements are included in AFMAN 65-604, *Appropriation Symbols and Budget Codes (Fiscal Year 1995)*. The single manager should contact the local FM organization concerning any questions on these appropriation codes.

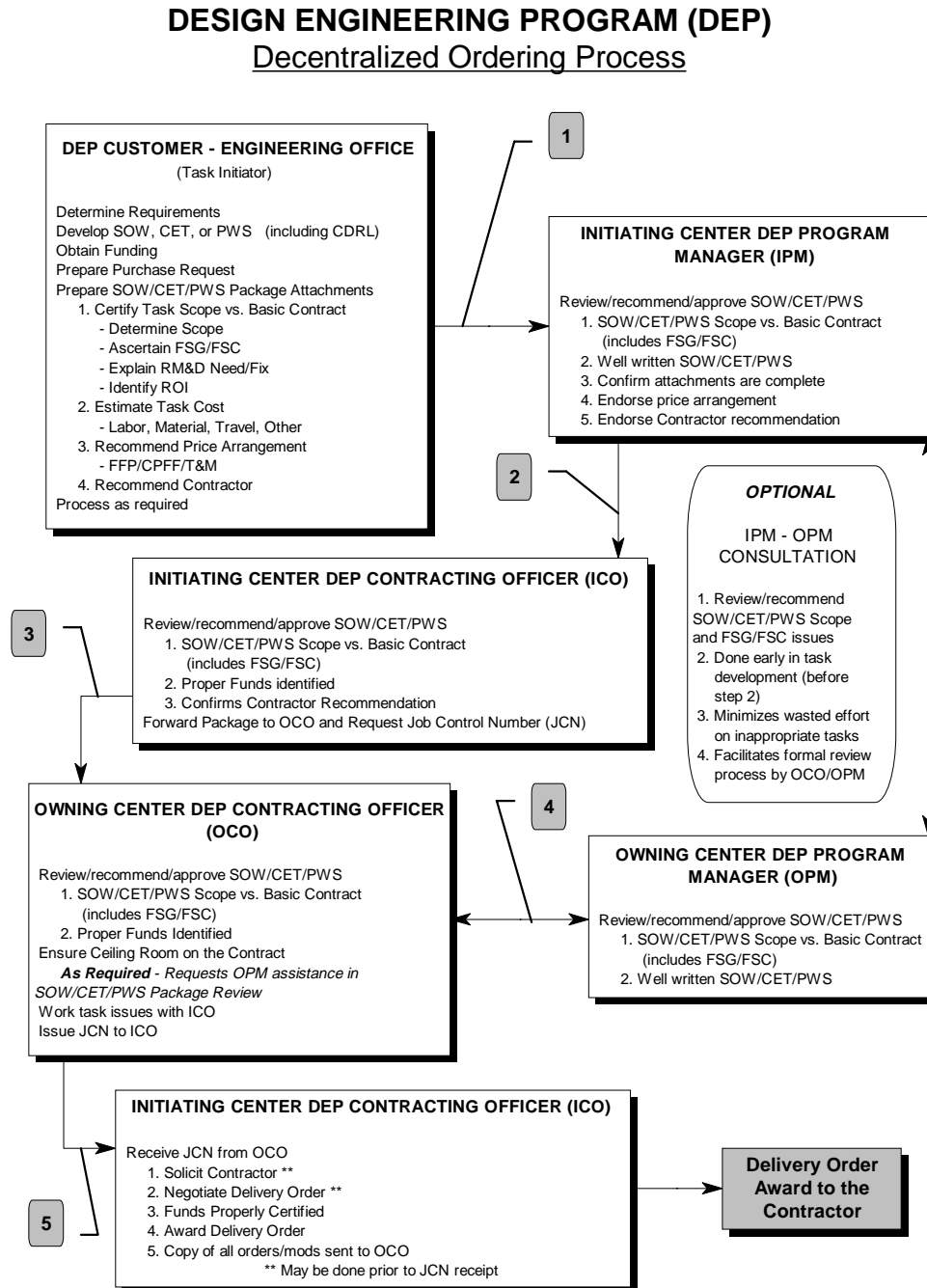
11.3. **Non-Air Force Funds.** The primary funding document to obtain goods and services from other DoD military services or United States government agencies is the Military Interdepartmental Purchase Request (MIPR, DD Forms 448 and 448-2). MIPRs used for contractual purposes such as DEP tasks are prepared and accepted on a direct cite basis (Category II type MIPR). AFR 177-102, *Commercial Transactions at Base Level*, outlines the financial processing of MIPRs while AFR 170-8, *Accounting for Obligations*, establishes prerequisites for the recording of obligations. (These two Air Force regulations will remain in effect until Defense Finance and Accounting Service (DFAS) writes the "parent" DoD Instruction). It should be noted AFR 177-102 states the acceptance of the MIPR is the responsibility of the task originating office -- not the accounting and finance officer (currently the financial services officer or defense accounting officer). Questions regarding the local financial processing of MIPRs from other services or agencies should be referred to the center FM and DFAS representatives.

**12. Waivers.** Waivers to the OCI clauses will be considered when in the government's interest. Waiver requests will be prepared by the IPM, as assisted by the ICO, according to FAR Subpart 9.503. Waiver requests will be sent to HQ AFMC/EN for staffing with HQ AFMC/PK and submittal to the decision authority.

**13. Training.** The OPMs/IPMs are responsible for maintaining their DEP efforts according to the policies and processes specified in this instruction. Engineers wishing to use the DEP should be familiar with the technical and contracting practices delineated in this instruction, with added emphasis on specific DEP scope limitations.

**Note.** For commodity items used in multiple weapon systems, the commodity item/system engineer must ensure all customer needs are addressed throughout the product improvement process.

**Figure 1. Design Engineering Program.**



**Figure 2. Standard Format for DEP PR Attachments.**

<p style="text-align: center;"><b>DESIGN ENGINEERING PROGRAM</b> <b>Purchase Request Supplement Sheet (page 1 of 4)</b></p>	
<p>Scope of Contract</p>	
<p>1. General Guidance. The object of DEP is the improvement of RM&amp;D of AFMC managed weapon systems, subsystems, components, parts, and software. This requires that there be an existing, identifiable RM&amp;D problem and an RM&amp;D improvement goal for the end result of the task. Tasks ordered against these contracts must reflect this objective. The DEP contractors represent top-level engineering talent, and should not be used for less challenging, less complex engineering work that can be procured more economically from other qualified sources.</p>	
<p>1.1. Examples of tasks a DEP contractor MAY PERFORM are:</p>	
<p>1.1.1. Hardware redesign to improve R&amp;M, such as: studies, production specifications, production prototyping, test, and qualification testing.</p>	
<p>1.1.2. Software R&amp;M tasks, such as: upgrade R&amp;M of software or software systems.</p>	
<p>1.1.3. High leverage technology insertion with broad RM&amp;D benefits, such as: support of technology application programs, for example: fiber optics, artificial intelligence, and cryogenics, robotics, etc.</p>	
<p>1.2. Examples of tasks a DEP contractor MAY NOT PERFORM are:</p>	
<p>1.2.1. Improve system or item capability (fly higher, farther, faster, or more accurately).</p>	
<p>1.2.2. Reverse Engineering.</p>	
<p>1.2.3. To acquire services for maintenance, training, or system/equipment operation or integration (including ADPE)</p>	
<p>1.2.4. To perform IV&amp;V on non-DEP initiated task.</p>	
<p>1.2.5. To prepare/acquire/update TOs, maintenance manuals, and create configuration management files.</p>	
<p>1.2.6. To purchase, establish, develop, or improve ADPE based management systems, including data management systems.</p>	
<p>1.2.7. To purchase, install, or integrate material/equipment except as necessary for prototyping purposes.</p>	
<p>1.2.8. To construct facilities.</p>	
<p>1.2.9. Where the proposed effort falls within the purview of the Federal Information Resources Management Regulation (FIRMR) (FAR Part 39).</p>	
<p><b>STANDARD FORMAT FOR DEP PURCHASE REQUEST ATTACHMENTS</b></p>	
<p>DEP Task Title:</p>	<p>PR Number:</p>
<p>DEP Task Number, Date:</p>	<p>Funding Types:</p>
<p>Estimated Dollar Amount:</p>	<p>Direct or Indirect RM&amp;D Task?</p>
<p>Task Initiator, Org, Phone:</p>	<p>Product or Process Improvement?</p>
<p>Recommended Contractor:</p>	
<p>Weapon System:</p>	
<p>Specific DEP Task Subject:</p>	<p>NSN:</p>
<p>Applicable FSG/FSC of the subject item (lowest identifiable)</p>	

**Figure 3. Page 2 of DEP PR.**

Purchase Request Supplemental Sheet (page 2 of 4)	
STATEMENT OF RM&D PROBLEM (in measurable terms):	
SUMMARY OF WORK (describe how this task will fix the RM&D problem):	
STATEMENT OF EXPECTED RM&D BENEFITS (in measurable terms):	
DESCRIPTION OF DELIVERABLES:	
RECOMMENDED CONTRACTOR:	
<i>I have reviewed the proposed task and recommend the above named contractor to support the requirement and receive the task order award. The recommendation is based on the following factors (Include factors such as continuing task, unique ability, past performance, experience with the system, etc.):</i>	
*****	
1. I have reviewed the proposed task and specify the above information is correct. I have determined that the identified task is within the scope of the ___-ALC DEP and meets associate guidance requirements. I will provide the initiating DEP Program Manager with an annual status of progress toward accomplishing the objectives of this task, and a final analysis (according to Form _____) upon completion of this task.	
<b>Task Initiating Organization Coordination</b>	
Originator: _____	
Date _____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	
Branch: _____	Date _____
_____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	
Division: _____	Date _____
_____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	
<b>2. Initiating Program Manager (IPM) Endorsement:</b> The attached PR and task have been reviewed and I concur with the originating office that this task is within scope of the basic contract.	
IPM: _____	Date _____
_____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	
<b>3. Initiating Contracting Officer (ICO) Approval:</b> I have reviewed the requirement documentation and concur that this task is within the scope of the basic contract.	
ICO: _____	Date _____
_____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	

**Figure 4. Page 3 of DEP PR.**

Purchase Request Supplement Sheet (page 3 of 4)			
DEP Task Title:		PR Number:	
DEP Task Number, Date:			
Task Initiator, Org, Phone:			
It is estimated that the following costs will be required to accomplish the engineering tasks for this DEP effort. This is a preliminary estimate and is subject to change during negotiations with the contractor.			
<b>Labor</b>			
Skills	Est. Hours	Hourly Rate (est)	Total Cost
.....	.....	.....	_____
.....	.....	.....	_____
.....	.....	.....	_____
.....	.....	.....	_____
.....	.....	.....	_____
.....	.....	.....	_____
			Subtotal
<b>Materials</b>			
_____		=	_____
_____		=	_____
_____		=	_____
_____		=	_____
_____		=	_____
			Subtotal
<b>Travel</b>			
No. of Trips to _____	X Cost per trip	=	_____
No. of Trips to _____	X Cost per trip	=	_____
No. of Trips to _____	X Cost per trip	=	_____
			Subtotal
<b>Other Related Costs</b>			
Type of cost		=	_____
_____		=	_____
_____		=	_____
_____		=	_____
			Subtotal
<b>TOTAL ESTIMATED COSTS</b>		=	_____
			Grand Total
Task Initiator: _____		Date _____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature			

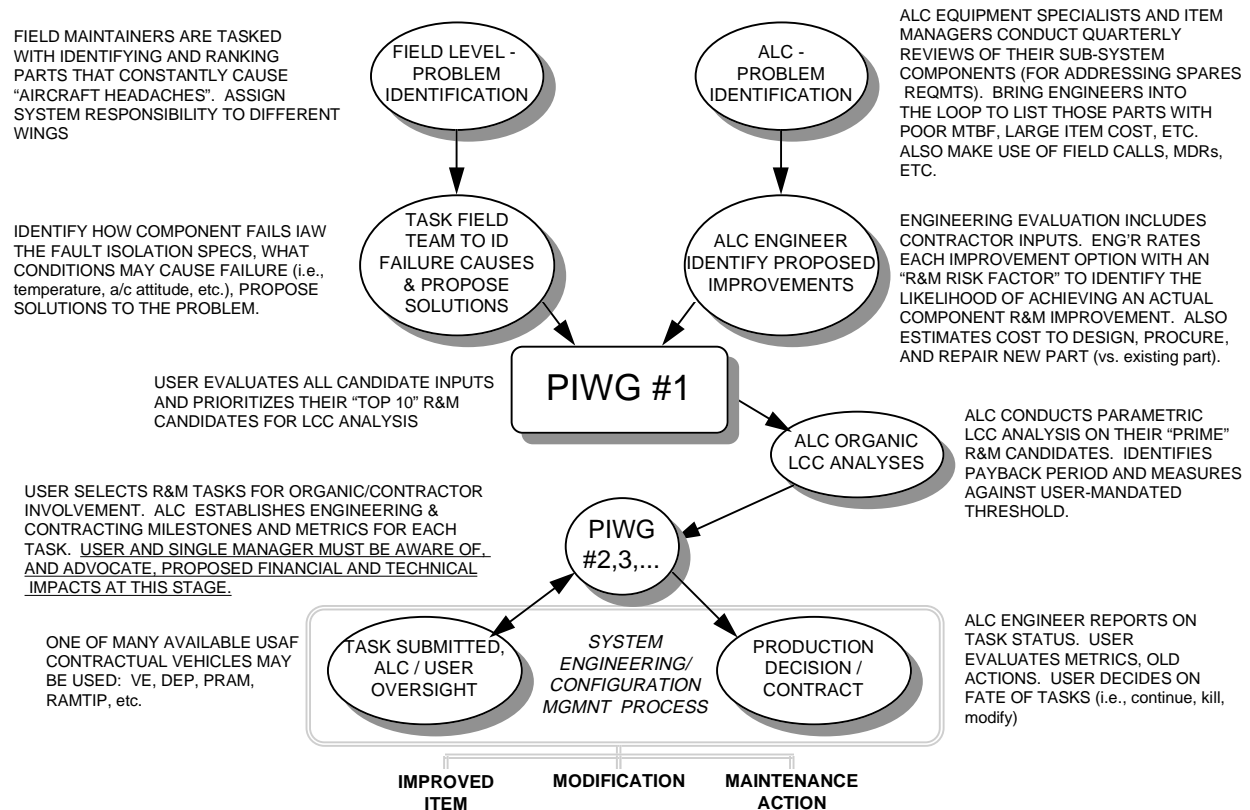
**Figure 5. Page 4 of DEP PR.**

Purchase Request Supplement Sheet (4 of 4)	
DEP Task Title:	
DEP Task Number, Date:	PR Number:
Task Initiator, Org., Phone:	
( ) FFP	Firm-fixed-price is recommended. There is a high probability of achieving the reasonable and firm performance objectives and schedules have been established <b>and</b> the amount of effort required is known.
( ) CPFF	Cost-plus-fixed-fee is recommended. Reasonable and firm performance objectives and schedules have not been firmly established and the amount of effort required is not fully known.
( ) T&M	Time and Materials is recommended. It is not possible to accurately estimate the extent or duration of the work or to anticipate costs with any reasonable degree of confidence.
I have reviewed the proposed task and recommend the above indicated pricing arrangement for the task order. The recommendation is based on the limitations of the pricing arrangements and the following factors:	
1. Task Initiating Organization Coordination	
Task Initiator: _____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	Date
2. Initiating Program Manager (IPM) Endorsement:	
( ) I have reviewed the documentation and concur with the technical activity recommendation.	
( ) I do not concur with the technical activity recommendation. The most appropriate pricing arrangement is (pricing arrangement). This selection is based on the following rationale:	
IPM: _____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	Date
3. Initiating Contracting Officer (ICO) Approval:	
( ) I have reviewed the documentation and concur with the technical activity recommendation.	
( ) I do not concur with the technical activity recommendation. The contractor to receive the task order is _____. The most appropriate pricing arrangement is (pricing arrangement). This selection is based on the following rationale:	
ICO: _____	
(PRINT NAME/OFFICE SYMBOL/PHONE/FAX)Signature	Date



**Figure 6. Product Improvement Process.**

## PRODUCT IMPROVEMENT PROCESS



**Table 1. Product Improvement Process.**

<b>Metric</b>	<b>Source</b>	<b>Collector/ Reporter</b>	<b>Means of Collecting Data from Source</b>
1)Total No. of DEP Requests	OCO	OCO	OCO database(1)
2)No. New TOs Awarded	OCO	OCO	OCO database(1)
3)No. TOs awarded / by FSG/ FSC	Task Engineer, IPM, OPM	OCO	OCO database (1) via PR Attachment
4)No. of types of TOs (direct/indirect, product/process)	Task Engineer, IPM, OPM	OCO	OCO database(1) via PR Attachment
5)No. DEP tasks completed	Task Engineers	OCO	Task Engineers' final reports to OPM (2); OPM must pass to OCO
6)No. tasks and \$'s awarded per ordering agency	OCO	OCO	OCO database(1)
7)No. tasks and \$'s awarded per contractor	OCO	OCO	OCO database(1)
8)Performance Summary	Task Engineers	OPM (via IPM)	Task Engineers' final reports to IPM (2)
9)No. tasks that met DEP objectives	Task Engineers	OPM	Task Engineers' final reports to OPM(2)
10)No. of completed tasks (in FY__) where contractor met all objectives	Task Engineers	OPM	Task Engineers' final reports to OPM(2)
11) No. tasks expected to go to production	Task Engineers	OPM	Task Engineers' final reports to OPM(2)

(1) OCO will maintain a database of all requested and awarded task orders with the following information: Date received, date of reply, determination (i.e., approved or disapproved), reason for disapproval, JCN, DEP task number, title, engineering OPR, dollar amount, contract type, contractor, issuing agency, FSG, and task type (i.e., direct versus indirect and product versus process).

(2) Task engineers will be required to submit a report following conclusion of their DEP task. Enforcement of this requirement will require the OPM to periodically check with the contractors to determine what tasks they have completed or to have them periodically furnish a report indicating completed task orders. Failure by the engineering OPR to submit timely reports to their IPM (and accordingly, from there to the OPM) would result in temporary suspension of ordering privileges for the issuing agency. OPMs will inform OCOs of completed tasks for inclusion in database.

#### **Resulting Forms:**

- 1) OCO database report gives 1, 2, 3, 5, 6, 8 and 9. OCO will provide report either directly to HQ AFMC or to the OPM to include in their report.
- 2) Task Engineer final report gives 4, 7, 10 and 11 for each task.

3) OPM reports 1 through 11 annually to HQ AFMC/EN (or OCO and OPM report their own metrics).

**Table 2. DEP Metrics**

ENGINEERING FUNDING DECISION TABLE					
		RDT&E	3010/3020/ 3080	O&M	DBOF
Are we engineering a weapon system?					
	What phase of the acquisition cycle are we in?				
	Dem/Val? (Milestone I & II)	X			
	Engineering & Manufacturing Development? (Milestone II)	X			
	Production & Deployment? (Milestone III)				
	Achieving/improving performance?	X			
	Correcting deficiency in approved production baseline?		X		
	Operations & Support? (Milestone IV)			X	
	Review/assess/define/resolve deficiencies in post production operational service?				
	Redesign a weapon system or an an aspect of its performance envelope?	X			
	Study needed to determine if an ECP/ECO should proceed to a mod?				
	--If mod is a reliability/maintanability/supportability effort?			X	
	--If mod is a development effort?	X			
	Engineering required to integrate or install Group B items.		X		
Are we engineering a non-DBOF sub-system, equipment or other major end items?					
Refer to weapon system					
Are we engineering a stocklisted item?					
	Is it an RSD/SSD item?				
	What phase of the acquisition cycle are we in?				
	Dem/Val, EMD and Production & Deployment? Refer to weapon system	X	X		

	Air Force owned RSD/SSD operational asset (i.e., Operations & Support Phase)?	
	-- Development/production/maintenance engineering of the operational item only?	X
	--Engineering of the operational item required as the result of a weapon system production or modification?	X
	Is item an engine component? Note: If we are engineering a whole engine, refer to weapon system	X
	If a non-RSD/SSD item and not an engine component? Refer to weapon system	
	Does engineering support the Depot Maint Business Area?	X

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Deputy Director, Engineering and Technical Management

## Attachment 1

### GLOSSARY OF TERMS

#### *Terms*

**Component**—Subsystem, assembly, subassembly, or other major element of an end item.

**Deployability**—The ability of an item to be fielded and placed into operational use. All functions associated with the actual fielding of the item (i.e., transport, receive, process, assemble, install, test checkout, operate and, as required, emplace, house, store, or field types of activities) are critical to meeting its operational availability.

**Maintainability**—The ability of an item to be retained in or restored to specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair.

**Process**—A planned series of actions or operations which advances a material or procedure from one stage of completion to another.

**Product Improvement**—Effort to incorporate a configuration change involving engineering and testing effort on end items and depot repairable components, or changes on other than developmental items to increase system or combat effectiveness or extend useful military life.

**Reliability**—A fundamental characteristic of an item of material expressed as the probability that it will perform its intended function for a specified period of time under stated conditions.

**Single Manager**—The generic title for a designated AFMC system program director, product group manager, or material group manager.

**Support Equipment**—Includes all equipment required to perform the support function, except that which is an integral part of the mission equipment. Support equipment includes tools, test equipment, automatic test equipment (when ATE is accomplishing a support function), organizational, field and depot support equipment, and related computer programs and software.

**DEP Program Manager (DEP PM)**—Individual responsible for management activities associated with the DEP. Responsibilities may include: developing and coordinating organizational DEP plans; developing and implementing the acquisition plan, expenditure ceilings, and supplemental guidance (for issuance of a DEP contract); analyzing DEP technical and contract performance data; developing and coordinating internal organizational procedures to allow for monitoring of all locally-initiated DEP efforts; acting as focal point for all internally and externally generated DEP task proposals; facilitating in technical and financial analyses.

**Initiating Center DEP Program Manager (IPM)**—DEP PM residing at a center, from which a DEP task proposal is identified for issuance against a DEP contract. The IPM is responsible for processing locally-initiated DEP task proposals according to paragraph 1.5.2.2.

**Owning Center DEP Program Manager (OPM)**—DEP PM residing at an ALC. The OPM is responsible for processing DEP task proposals identified for issuance against his/her center's DEP contract.

**Initiating Center DEP Contracting Officer (ICO)**—CO who initiates a DEP task order when that CO does not administer the DEP *contract* against which the order is placed. Only centers identified in the

DEP *contracts* as decentralized ordering activities may have ICOs.

**Owning Center DEP Contracting Officer (OCO)**—CO responsible for administering the Center's DEP *contracts*.